



Arizona Department of Transportation

ROADWAY ENGINEERING GROUP

MEMORANDUM

To: All Design Personnel
ADOT and Consultants

Date: July 24, 2003

From: John L. Louis
Assistant State Engineer
Roadway Engineering Group

Subject: Design Vehicles
Roadway Design Guidelines, 1996
Section 407 (RDG)

The design vehicles shown in Chapter 2 of the 2001 AASHTO Green Book are adopted for use on the State Highway System. Several of the vehicles have been revised somewhat to reflect the current vehicle fleet dimensions. Table 407.2 (attached) has been revised to reflect the design vehicles to be utilized for various intersection types. Of significance is the WB-67 design vehicle, a common truck on the Interstate System. More conservative design vehicles have been designated in the revised RDG Table 407.2. In Arizona, there are few restrictions on where trucks may operate on state highways. One exception is the AASHTO WB-100T triple-trailer combination which is presently allowed to operate only on Interstate 15. As previously stated in Section 407.2 of the RDG "The selection of the design vehicle should be made with care, with consideration given to the appropriate uses of the intersection and the consequences of not fully providing for the largest vehicles. The design vehicle is determined by the types of roadways involved, the area the intersection services, and the types and volume of vehicles using the intersection."

The design vehicles shown in the Green Book can be utilized to determine turning space requirements by using either the templates provided or by using the proprietary AutoTURN program. The newest AutoTURN program has been enhanced from previous versions and will track the vehicle through an intersection. Copies of the AASHTO turning templates may be obtained upon request from Roadway Design Section for those designers not having AutoTURN. Table 407.1 in the RDG has been eliminated since the information is shown on the AASHTO Exhibits. The desirable and minimum inside turning radius values have also been removed from Table 407.2.

Implement the new AASHTO templates and RDG Table 407.2 on all new construction. Also analyze and include updates when appropriate for intersections planned for reconstruction. District personnel may be able to provide assistance on the types of vehicles utilizing existing intersections and how well the intersection turning movements operate. Please contact Roadway Design Section for any assistance with the above information and provide us with your comments in using the revised table.

Please distribute copies of this memorandum to all design personnel, project managers, consultants, and other users of the Roadway Design Guidelines within your respective Groups. Thank you for your attention to this item.

C:

Roadway Engineering Group
Statewide Project Management
Valley Freeway Group
Engineering Consultant Services
Constuction Group
District Engineers (10)
Traffic Engineering Group
Regional Traffic Engineers (4)
Local Government Section
District Permits
Contracts and Specifications Section
Materials Group
Bridge Group
Central Maintenance
FHWA

attachment

ROADWAY DESIGN GUIDELINES

Table 407.2

Intersection Design Vehicles

Design Vehicle

<u>Intersection Type</u>	<u>Desirable</u>	<u>Minimum</u>
Interstate- Ramp/Crossroad	WB-67	WB-67
Other Controlled Access-Ramp/Crossroad	WB-67	WB-62
Junction of Major Truck Routes	WB-67	WB-62
Recommended Design Vehicles *		
Junction of State Routes	WB-62, WB-50 , WB-40	
Other Rural	WB-50, WB-40 , SU	
Urban Major Streets	WB-50, WB-40 , SU	
Other Urban	WB-40, SU, P	

* Recommended Design Vehicle to be selected based upon anticipated future intersection usage.
 Alternate Design Vehicles may be selected for special use areas.